

## **SESSION 9a: MANUFACTURING**

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Compound semiconductors offer nearly limitless structural and elemental combinations which often create competitive advantage over existing scaled solutions. Although these advantages can create significant market opportunities, companies must be able to demonstrate capable manufacturing solutions with an eye toward continuous improvement in cycle time, performance, yield and cost. Increased circuit complexity and integration demand improvements in basic manufacturing capabilities just to maintain historic yields. Manufacturing improvements are keys to the continued growth and sustainability of our industry and allow companies to maintain or even increase their competitive advantage once performance gaps begin to close.

This session includes a presentation on the reduction of manufacturing waste and environmental impact as well as three papers highlighting yield improvement solutions and techniques. The first presentation in the session highlights efforts at Sony Semiconductor Kyushu Corporation to reduce the waste and by-products associated with their wafer grinding process and to reduce the environmental impact of the GaAs grinding activities. The presentation will outline efforts to reuse waste water from the grinding process reducing demands on the factory high purity water systems. It will also address efforts to reduce consumable components in the grinding equipment. In our second presentation from Avago Technologies, the presenter will outline strategies for the use of wafer randomizers to trouble shoot wafer yield issues. Borrowing from techniques implemented in high volume silicon manufacturing, wafer randomization techniques in use at Avago help identify trends within single lots or lot to lot. They also outline methods for identifying concerns in multi-chamber tools. Representatives of TriQuint Semiconductor manufacturing facility will present an overview of techniques employed to reduce yield loss in their production process. While their resulting yield improvements are significant, the methodologies and problem solving approaches outlined are equally valuable as they demonstrate a solid framework and foundation for most any yield improvement effort. In the final presentation of the session, RFMD will describe efforts to reduce wafers broken during the backside processing of thinned wafers. Numerous process variables were explored to understand their impact on wafer breakage in a team investigation and problem solving environment.